

Amendments to the Claims:

Claim 47 is amended as set forth hereinafter.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1 to 27 (Cancelled).

28. (Previously Presented) A projection exposure system defining an optical axis and comprising:

an illuminating unit mounted on said optical axis for transmitting a light beam along said optical axis;

5 a projection objective arranged on said optical axis downstream of said illuminating unit;

a mask held in the beam path of said light beam between said illuminating unit and said projection objective;

10 a substrate holder for holding a substrate in said beam path downstream of said projection objective; and,

said projection objective defining a maximum lens diameter and including:

a plurality of lenses defining an object plane and an image plane;

15 at least two of said lenses having respective mutually adjacent lens surfaces which are aspheric to define a double asphere;

20 said double asphere being mounted at a distance from said image plane corresponding at least to said maximum lens diameter;

the lenses of said double asphere defining a mean lens diameter; and,

said mutually adjacent lens surfaces being mounted at a spacing from each other which is less than half of said mean lens diameter.

29. (Previously Presented) A method of making a microstructured component utilizing a projection exposure system including an illuminating unit mounted on said optical axis for transmitting a light beam along said optical axis; a projection objective arranged on said optical axis downstream of said illuminating unit; a mask held in the beam path of said light beam between said illuminating unit and said projection objective and said mask holding a pattern; a substrate holder for holding a substrate in said beam path downstream of said projection objective; and, said projection objective defining a maximum lens diameter and including: a plurality of lenses defining an object plane and an image plane; at least two of said lenses having respective mutually adjacent lens surfaces which are aspheric to define a double asphere; said double asphere being mounted at a distance from said image plane corresponding at least to said maximum lens diameter; the lenses of said double asphere defining a mean lens diameter; and, said mutually adjacent lens surfaces being mounted at a spacing from each other which is less than half of said mean lens diameter, the method comprising the steps of:

providing said substrate as a substrate having a light-sensitive layer thereon;

holding said substrate in said beam path exposing said light-sensitive layer with ultraviolet laser light from said illuminating unit; and,

developing the exposed light-sensitive layer to structure said substrate to have said pattern of said mask.

30. (Previously Presented) A refractive projection objective comprising:

two lens groups of negative refractive power;

at least one of said lens groups of negative refractive
5 power including only two lenses of negative refractive power;

the other one of said lens groups of negative refractive
power having maximally two lenses of negative refractive
power; and,

said lens groups defining at least two constrictions and
10 an aspheric lens surface is arranged in the second
constriction.

31. (Previously Presented) The refractive projection
objective of claim 30, further comprising a lens group of
positive refractive power including at least one lens having
an aspheric surface; and, a diaphragm mounted in said lens
5 group of positive refractive power.

32. (Previously Presented) The refractive projection
objective of claim 30, further comprising at least two lenses
having respective mutually adjacent lens surfaces which are
aspheric to define a double asphere.

33. (Previously Presented) The refractive projection
objective of claim 30, wherein said refractive projection
objective defines a maximum lens diameter and said refractive
projection objective further comprises:

5 a plurality of lenses defining an object plane and an
image plane;

at least two of said lenses having respective mutually adjacent lens surfaces which are aspheric to define a double asphere;

10 said double asphere being mounted at a distance from said image plane corresponding at least to said maximum lens diameter;

the lenses of said double asphere defining a mean lens diameter; and,

15 said mutually adjacent lens surfaces being mounted at a spacing from each other which is less than half of said mean lens diameter.

34. (Previously Presented) The projection objective of claim 33, wherein said plurality of lenses defines at least two constrictions.

35. (Previously Presented) The projection objective of claim 33, comprising at least two of said double aspheres and said spacings thereof being equidistant.

36. (Previously Presented) The projection objective of claim 33, wherein the radii of the best-fitting spherical lens surfaces of one of said double aspheres differ from one another by less than 30%.

37. (Previously Presented) The projection objective of claim 33, wherein the apex radii of the best-fitting spherical lens surfaces of a double asphere, which are assigned to the respective aspheric lens surfaces, differ from one another by
5 less than 30%.

38. (Previously Presented) The projection objective of claim 33, wherein the diameters of the first thirteen lens surfaces hardly differ from each other, preferably by less than 10%.

39. (Previously Presented) The projection objective of claim 33, wherein a numerical aperture of at least 0.8 is made available by the double asphere.

40. (Previously Presented) The projection objective of claim 33, wherein a numerical aperture of at least 0.9 is made available by the double asphere.

41. (Previously Presented) The projection objective of claim 33, wherein two mutually adjacent lens surfaces define an intermediate space chargeable with a fluid.

42. (Previously Presented) The projection objective of claim 33, wherein at least 40% of the lenses are spherical.

43. (Previously Presented) The projection objective of claim 33, wherein at least 60% of the lenses are spherical.

44. (Previously Presented) A projection objective defining a maximum lens diameter and including:

a plurality of lenses defining an object plane and an image plane;

5 at least two of said lenses having respective mutually adjacent lens surfaces which are aspheric to define a double asphere;

said double asphere being mounted at a distance from said image plane corresponding at least to said maximum lens diameter;

the lenses of said double asphere defining a mean lens diameter;

said mutually adjacent lens surfaces being mounted at a spacing from each other which is less than half of said mean lens diameter; and,

said projection objective being a refractive projection objective defining a maximum lens diameter and including:

at least five lens groups having lenses defining lens surfaces and defining an object plane and an image plane;

at least two of said lenses having respective mutually adjacent lens surfaces which are aspheric to define a double asphere; and,

said double asphere being mounted from said image plane at a distance of at least said maximum lens diameter.

45. (Previously Presented) The refractive projection objective of claim 44, wherein said plurality of lenses defines at least two constrictions.

46. (Previously Presented) The refractive projection objective of claim 44, wherein the aspheric surfaces are arranged on different lenses.

47. (Currently Amended) The refractive projection objective of claim 45, wherein all aspheric lenses are mounted ahead of the first constriction.

48. (Previously Presented) The refractive projection objective of claim 44, comprising two of said double aspheres

and the mutually adjacent lens surfaces of each double asphere are mounted at a spacing from each other of at most their mean
5 half lens diameter measured from the optical axis.

49. (Previously Presented) The refractive projection objective of claim 48, wherein the mutually adjacent aspheric lens surfaces of each of said aspheres defines an air gap measured on the optical axis of a maximum of 20% of the mean
5 radius of the corresponding asphere.

50. (Previously Presented) The refractive projection objective of claim 44, wherein a numerical aperture of at least 0.8 is made available by the double asphere.

51. (Previously Presented) The refractive projection objective of claim 44, wherein a numerical aperture of at least 0.9 is made available by the double asphere.

52. (Previously Presented) The refractive projection objective of claim 44, wherein two mutually adjacent lens surfaces define an intermediate space chargeable with a fluid.

53. (Previously Presented) The refractive projection objective of claim 44, wherein at least 40% of the lenses are spherical.

54. (Previously Presented) The refractive projection objective of claim 44, wherein at least 60% of the lenses are spherical.

55. (Previously Presented) A projection objective defining a maximum lens diameter and including:

a plurality of lenses defining an object plane and an image plane;

5 at least two of said lenses having respective mutually adjacent lens surfaces which are aspheric to define a double asphere;

 said double asphere being mounted at a distance from said image plane corresponding at least to said maximum lens
10 diameter;

 the lenses of said double asphere defining a mean lens diameter;

 said mutually adjacent lens surfaces being mounted at a spacing from each other which is less than half of said mean
15 lens diameter; and,

 said projection objective being a refractive projection objective including:

 two lens groups of negative refractive power; and,

 at least one of said lens groups of negative refractive
20 power including only two lenses of negative refractive power.

56. (Previously Presented) The refractive projection objective of claim 55, wherein the other one of said lens groups of negative refractive power has maximally two lenses of negative refractive power.

57. (Previously Presented) The refractive projection objective of claim 56, wherein said lens groups define at least two constrictions and an aspheric lens surface is arranged in the second constriction.

58. (Previously Presented) The refractive projection objective of claim 56, further comprising a lens group of positive refractive power including at least one lens having

an aspheric surface; and, a diaphragm mounted in said lens
5 group of positive refractive power.

59. (Previously Presented) The refractive projection
objective of claim 55, further comprising at least two lenses
having respective mutually adjacent lens surfaces which are
aspheric to define a double asphere.